

WHAT IS CLAIMED IS:

1. An air filtration system for mounting to an air supply nozzle of a passenger compartment; the air filtration system comprising:

a two-part housing comprising an upper housing part and a lower housing part; the upper and lower housing parts comprising an exterior surface and an interior surface and wherein the interior surface defining an interior cavity;

a filter medium disposed in the interior cavity of the two-part housing;

an inlet nozzle defined by an opening having an inside diameter on the upper housing part; the diameter of the opening being smaller than an inside diameter of the air supply nozzle of the passenger compartment;

an outlet nozzle disposed on the lower housing part; and

an adhesive bonded to at least one of the exterior surface of the upper housing part proximate the inlet nozzle or the air supply nozzle of the passenger compartment.

2. The air filtration system of claim 1, wherein the upper and lower housing parts are attached to one another by detents.

3. The air filtration system of claim 1, wherein the upper and lower housing parts are attached to one another by adhesive bonding, by ultrasonic welding, or by threading.

4. The air filtration system of claim 1, wherein the outlet nozzle of the lower housing part comprises an extension such that an opening of the outlet nozzle is spaced apart from the exterior surface of the lower housing part.

5. The air filtration system of claim 1, wherein the adhesive is bonded to both the exterior surface of the upper housing part proximate the inlet nozzle and the air supply nozzle of the passenger compartment.

6. The air filtration system of claim 1, wherein the filter medium comprises an electrostatically charged polypropylene non-woven membrane.

7. The air filtration system of claim 1, further comprising an air directional nozzle attached to the outlet nozzle, wherein the air directional nozzle is moveable relative to the lower housing part.

8. The air filtration system of claim 4, further comprising an air directional nozzle attached to the extension of the outlet nozzle.

9. A method for filtering air discharged from an air supply nozzle of a passenger compartment comprising:

attaching a two-part housing of an air filtration system comprising an upper housing part and a lower housing part to the air supply nozzle of the passenger compartment; the upper and lower housing parts comprising an exterior surface and an interior surface and wherein the interior surface defining an interior cavity;

passing air from the air supply nozzle through the interior cavity of the two-part housing via an inlet nozzle disposed on the upper housing part; the inlet nozzle defining an opening having an inside diameter smaller than an inside diameter of the air supply nozzle;

filtering the air by passing at least a portion of the air entered the inlet nozzle through a filter medium disposed in the interior cavity of the two-part housing;

discharging the filtered air by directing the filtered air through an outlet nozzle disposed on the lower housing part; and

wherein the attaching step comprises bonding at least one of the exterior surface of the upper housing part proximate the inlet nozzle or the air supply nozzle of the passenger compartment with an adhesive.

10. The method of claim 9, further comprising the step of bonding the adhesive to both the exterior surface of the upper housing part proximate the inlet nozzle and the air supply nozzle of the passenger compartment.

11. The method of claim 9, further comprising the step of separating the air filtration system from the air supply nozzle by separating the bonding from at least one of the exterior surface of the upper housing part proximate the inlet nozzle or the air supply nozzle of the passenger compartment.

12. The method of claim 9, wherein the upper housing part and the lower housing part are attached to one another by one of adhesive bonding, ultrasonic welding, detent engagement, or threading engagement.

13. The method of claim 9, wherein the filter medium comprises an electrostatically charged polypropylene non-woven membrane.

14. The method of claim 9, further comprising an air direction nozzle attached to the outlet nozzle of the lower housing part.

15. An air filtration device for filtering air discharged from an air supply nozzle of a passenger compartment comprising:

a housing comprising an upper section and a lower section, the upper and lower sections comprising an exterior surface and an interior surface, which defines an interior cavity;

a filter medium disposed in the interior cavity of the housing;

an inlet nozzle disposed on the upper section, the inlet nozzle being defined by an opening in the upper section;

an outlet nozzle disposed on the lower housing section; and

wherein an adhesive is bonded to a portion of the exterior surface of the upper section proximate the inlet nozzle, and wherein the adhesive comprises a passage for passing air discharged from the air supply nozzle.

16. The air filtration device of claim 15, wherein the upper and lower sections are attached to one another by one of adhesive bonding, detent attachment, ultrasonic welding, or threaded engagement.

17. The air filtration device of claim 15, further comprising an air directional nozzle attached to the outlet nozzle of the lower section.

18. The air filtration device of claim 15, wherein the adhesive a two-sided a foam adhesive.

19. The air filtration device of claim 15, wherein the filter medium is removable from the housing.

20. The air filtration device of claim 17, wherein the air directional nozzle is attached to the outlet nozzle of the lower section by a ball and socket configuration.

21. An air filtration device for filtering air discharged from an air supply nozzle of a passenger compartment comprising:

- a two part filter housing comprising an upper housing section, a lower housing section, an exterior surface and an interior surface defining an interior cavity;

- a filter media disposed in the interior cavity;

- an inlet nozzle disposed on the upper housing section, the inlet nozzle being defined by an opening in the upper housing section;

- an outlet nozzle disposed on the lower housing section;

- an adhesive foam pad comprising a passage opening bonded to a portion of the exterior surface of the upper housing section proximate the inlet nozzle; and

- a mounting guide for facilitating centering the passage opening of the adhesive foam pad with the inlet nozzle on the upper housing section.

22. The air filtration device as recited in claim 21, wherein the upper housing section and the lower housing section are removably attached to one another.

23. The air filtration device as recited in claim 22, wherein the removable attachment comprises male detents and female detents.

24. The air filtration device as recited in claim 21, wherein the upper and lower housing sections each comprises a shoulder on an exterior surface.

25. The air filtration device as recited in claim 24, wherein the filter media is compressed along at least a portion of its perimeter by the shoulders of the upper and lower housing sections.

26. The air filtration device as recited in claim 21, further comprising a centering ring positioned over the adhesive foam pad.

27. The air filtration device as recited in claim 26, wherein the centering ring is adhered to the adhesive foam pad.

28. The air filtration device as recited in claim 27, wherein the centering ring comprises a plurality of fingers and a plurality of registration walls.

29. The air filtration device as recited in claim 28, wherein the air supply nozzle is adhered to the adhesive foam pad.

30. The air filtration device as recited in claim 29, wherein the air supply nozzle is gripped by the plurality of fingers.

31. The air filtration device as recited in claim 21, wherein the adhesive foam pad comprises an upper surface and a lower surface and wherein pressure sensitive adhesive is formed on at least a portion of both the upper and lower surfaces.

32. The air filtration device as recited in claim 31, wherein the adhesive foam pad comprises at least one gripping tab.

33. The air filtration device as recited in claim 21, wherein the mounting guide comprises two curvilinear walls.

34. The air filtration device as recited in claim 33, wherein the two curvilinear walls each comprises a wall height that extends axially relative to the inlet nozzle.

35. An air filtration device for filtering air discharged from an air supply nozzle of a passenger compartment assembled from the steps comprising:

obtaining a package container containing a replacement adhesive foam pad, said adhesive foam pad comprising a passage opening, a first surface, a second surface, and adhesive on at least a portion of the first surface and of the second surface;

applying the replacement adhesive foam pad on a filter housing comprising an inlet opening located on a generally flat portion of an upper housing section; and

wherein the adhesive foam pad is applied such that the passage opening of the adhesive foam pad generally aligns with the inlet opening of the upper housing section.

36. The air filtration device as recited in claim 35, wherein the package container comprises a plastic bag.

37. The air filtration device as recited in claim 36, further comprising a replacement filter media.

38. The air filtration device as recited in claim 37, further comprising a replacement centering device.

39. The air filtration device as recited in claim 37, wherein the package container further comprises a hanging receptacle.

40. The air filtration device as recited in claim 35, wherein the adhesive comprises pressure sensitive adhesive.

41. The air filtration device as recited in claim 35, wherein the filter housing further comprises a lower housing section, and wherein the upper housing section is removably attached to the lower housing section.

42. The air filtration device as recited in claim 41, wherein the upper and lower housing sections define an interior cavity, and wherein a filter media is disposed in the interior cavity.

43. The air filtration device as recited in claim 42, wherein the filter media is clamped by a shoulder of the upper housing section and a shoulder of the lower housing section.

44. The air filtration device as recited in claim 42, wherein the package container further comprises a replacement filter media.

45. The air filtration device as recited in claim 41, wherein the removable attachment comprises male detents and female detents.

46. The air filtration device as recited in claim 41, further comprising a centering ring.

47. The air filtration device as recited in claim 46, wherein the centering ring is positioned over the replacement adhesive foam pad.

48. The air filtration device as recited in claim 47, wherein the centering ring comprises a central opening.

49. The air filtration device as recited in claim 47, wherein the centering ring comprises a plurality of fingers.

50. The air filtration device as recited in claim 41, further comprising a mounting guide disposed proximate the inlet opening for centering the replacement adhesive foam pad.